

CHANGES IN THE BIRD FAUNA OF A FOREST AREA; SIMLIPAL HILLS, MAYURBHANJ DISTRICT, AND DHENKANAL DISTRICT, ORISSA

S. DILLON RIPLEY¹

In this world of uncertainty, nothing is more certain than the fact that no single state of nature ever quite stays the same. Ecological studies have shown over and over the fallacy of surveying a spatial area of land or water, documenting the population composition of species, and from those terms of reference assuming that stability can be proved to have been the rule at a later period of time. Such fallacious assumptions have been developed in the past in surveys by government agencies for the setting up of parks or reserves.

As no accurate method seems to have been devised for measuring the amount of space which a complex of interacting species in nature need to survive in balance, and to maintain a reproductive minimum critical size, aside of course for some classic laboratory observations, it seems likely that the study of parks or reserves and their creation, is far more complicated than previously thought, and requires much further refinement. Biological and ecological research, coupled with the development of mathematical models would seem to be a priority in assessing the future of species themselves as well as the preservation of suitable habitat.

A case in point may be the observations made by Dr. Salim Ali, my wife and myself in Mayurbhanj District, in the Simlipal Hills of Orissa in February, 1975 and southwards. Here we were fortunate enough to spend three weeks of observation from Chahala in

the north, south to the Mahanadi River and the adjacent Dhenkanal District. During this visit we were the guests of the Government of Orissa, whose forestry service, under then Deputy Secretary Shri D. K. Chatterjee I.A.S., Mr. Jee, Chief Conservator of Forests, Mr. Das, the Department Wildlife coordinator, all were kindness itself. Our special thanks are due to Shri Saroj Chaudury, the special Conservator of Wildlife and the great tiger authority, for his generosity and help to us during our visit.

Dr. Sálím Ali and I had both visited and made observations in the hills of northern Orissa in 1947, twenty-eight years before. We thus, in perhaps a somewhat crude way, were able to compare observations of the occurrence of bird species in the same area over a quarter century apart. Obviously these notes are perhaps of only marginal significance, but it seems worthwhile to write them here, due to the paucity of field observations in this interesting area. It is to be hoped that Sálím Ali's collections of 1947 will eventually be at least listed with localities, and published in order to give a baseline against which to judge later collecting and field observations. In my own case observations alone must suffice.

Once we entered the reserved forest areas of the Simlipal Hills of Mayurbhanj on February third, 1975, it became rapidly apparent that we were in a virtual monoculture situation. The tropical dry deciduous or moist deciduous forests of these areas are completely dominated by a monotonous planting of

¹ Smithsonian Institution, Washington, D.C. 20560, U.S.A.

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sal, *Shorea robusta*, which has been rigorously cultivated as a dominant forest product. Relatively mature plantations of these trees ranging in age from 25-60 years occupy the landscape as an exercise in silviculture. The understorey in these vast stretches of plantation is similarly monotonous with strobilanthes, ferns and grasses present being dominant, presumably due to fire and man-made clearing. As Champion and Seth state (1968:121), "Planned forest management has intensified its (sal) dominance in many areas by selective removal of other competing species." However, these authors do not speculate on the consequences of this enforced dominance.

Here and there one can still find small irregularities, nullahs where sal has not been planted. In these nullahs depending on steepness and general size, may be found patches of so-called "miscellaneous forest," in the forester's term, and here remnant samplings of tropical moist deciduous forest species occur. Here we found rattan and pandanus, examples of *Terminalias*, *Bombax*, *Cassia fistula*, *Adina*, *Erythrina* and *Dillenia* as examples.

Whether these patches represent original forest or are secondary, the result of shallow stony soil conditions, exposure, erosion and cutting through activities of the Kohl and Khariya people is hard to say. Some of each tribal group have now been employed for two generations in the promotion of these forest reserves, and the forests are continually being seasonally burned and cleared of undergrowth. In any case, here and there one had at least a temporary impression that in the thickest parts of these clumps along a stream bed, there still occurs a microclimate approaching the tropical semi-evergreen type of vegetation, especially in the presence of a few stands of climbers like rattan, *Calamus* spp.,

Pandanus, and bamboos, including the thorny *B. arundinacea*, *Dendrocalamus strictus*, and *Imperata* grass.

In 1947, these stands of sal were less prevalent in the sense that much less of the plantation form was in evidence, more mixed jungle remained, and consequently there was a different, less parklike, less artificial situation. Both of us were struck by the extreme paucity of birds in the thick stands of sal. We were impressed by the occurrence of birds along the stream beds and remnant patches of miscellaneous forest. Only here and there flowering bushes, *Woodfordia* or *Indigofera* were left along the roadside, might one see small birds such as sunbirds or honeyeaters attracted to feed, passing through the sal plantation enroute.

A good deal of current literature concerns the important observation that, "the diversity of bird species increases with increasing vegetation diversity," (Mulsow 1977), although most of the current studies are being undertaken in temperate Western Europe and North America. Bezzel (1974, 1976, 1977) has studied breeding bird populations with grid-mapping and has shown clearly that unchecked economic expansion affects bird populations directly. Therefore "the quality of an environment can be measured by its birdlife," and ecological planning as well as impact assessment can be developed through bird study. This is paralleled in the work of Reichholf (1973-1976) on butterflies, Egloff and Brakel (1973) on stream pollution and a diversity index, Tramer and Rogers (1973) on fish population in streams, and Woodwell (1974) on biotic impoverishment, and numerous other papers such as Lack and Lack (1951).

In our own case we had fourteen days of observations in these areas of reserved forest.

In the sal plantation areas, we found on the average only the following species working their way through the mid-storey of the forest below the closed leafy canopy (for in this area sal has only a two to three week period of being deciduous at the end of the dry season):

I. SPECIES OBSERVED IN SAL PLANTATIONS.

- Number (from SYNOPSIS, 1961)
- 501. *Treron bicincta*
 - 987. *Sturnus malabaricus*
 - 1067. *Tephrodornis virgatus*
 - 1070. *Tephrodornis gularis*
 - 1091. *Pericrocotus cinnamomeus*
 - 1264a. *Turdoides striatus* (flocks pass through sal plantations)
 - 1419. *Muscicapa westermanni*
 - 1448. *Culicicapa ceylonensis*
 - 1503. *Prinia hodgsonii*
 - 1590. *Phylloscopus inornatus*
 - 1838. *Sitta frontalis*
 - 1892. *Dicaeum agile* (flowering bushes, e.g. *Woodfordia*)
 - 1917. *Nectarinia asiatica* " " "
 - 1927. *Aethopyga siparaja* " " "
 - 1933. *Zosterops palpebrosa*
 - 1949. *Petronia xanthocollis*

II. Species observed in "miscellaneous forest", i.e. tropical dry deciduous and patches of tropical moist deciduous, perhaps the closest to "moist peninsular valley sal" of Champion and Seth (1968). I exclude open country species observed during our visit such as waterbirds including lapwings, owlets such as *Athene brama*, bush-larks, jungle crow, common bulbuls, migrant shrikes, pipits and wag-tails, seen frequently along streams in winter. The following list then is essentially of the closed forest:

II. SPECIES OF PATCHES OF CLOSED FOREST

- 138. *Accipiter badius*
- 211. *Falco peregrinus*
- 278. *Galloperdix lunulata*
- 299. *Gallus gallus*
- 504. *Treron phoenicoptera*
- 511. *Ducula badia*
- 542. *Chalcophaps indica*
- 557. *Psittacula cyanocephala* (on flowering trees)
- 617. *Otus scops*
- 631. *Bubo zeylonensis*
- 636. *Glaucidium radiatum*
- 642. *Ninox scutulata*
- 671. *Caprimulgus indicus*
- 682. *Caprimulgus affinis*
- 709. *Hemiprocne longipennis*
- 710. *Harpactes fasciatus*
- 775. *Anthracoseros coronatus* (heard locally but now increasingly rare due to human predation for medicinal purposes.)
- 780. *Megalaima zeylanica* (forest patches in Mayurbhanj)
- 784. *Megalaima lineata* (forest patches in Dhenkanal dist. possibly replacing *zeylanica*?)
- 792. *Megalaima haemacephala*
- 799. *Picumnus innominatus*
- 810. *Picus canus*¹
- 813. *Picus flavinucha*
- 814. *Picus chlorolophus*
- 830. *Dryocopus javensis* (seen in Dhenkanal dist.)
- 847. *Picoides mahrattensis*
- 851. *Picoides nanus*
- 861. *Chrysocolaptes lucidus*
- 972. *Dicrurus remifer*
- 973. *Dicrurus paradiseus*
- 1009. *Acridotheres fuscus*
- 1017. *Gracula religiosa* (only in Dhenkanal dist.)
- 1032. *Dendrocitta vagabunda*
- 1065. *Hemipus picatus*
- 1083. *Pericrocotus flammeus*

¹ *Picus canus gyldenstolpei* represents a new record for Mayurbhanj District, another example of the presence in the northern Orissa hills of Himalayan foothill species such as the bulbul, *Pycnonotus melanicterus flaviventris*, or such

babblers as *Stachyris ruficeps* and *Dumetia*, and *Macronous gularis* implying a recent distribution since the last colder, pluvial period with no sub-specific or recognizable differentiation.

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1103. *Chloropsis aurifrons*
 ?1109. *Irena puella* (an unverified sight record, which implies that this species should be looked for in the future.)
 1115. *Pycnonotus melanicterus*
 1154. *Pellorneum ruficeps*
 1173. *Pomatorhinus schisticeps*
 1210. *Stachyris ruficeps*
 1222. *Dumetia hyperythra*
 1228. *Macronous gularis*
 1264a. *Turdoides striatus* (flocks passing through sal plantations also)
 1389. *Alcippe poiocephala*
 1438. *Muscicapa poliogenys*
 1451. *Rhipidura aureola*
 1457. *Rhipidura albicollis*
 1465. *Hypothymis azurea*
 1522. *Prinia sylvatica*
 1578. *Phylloscopus tytleri*²
 1604. *Phylloscopus trochiloides*
 1734. *Zoothera citrina*
 1831. *Sitta castanea*
 1899. *Dicaeum erythrorhynchos* (near *Loranthus*)
 2011. *Carpodacus erythrinus*

ribbons of forest preserved by accident in so-called "reserved forest". This represents a factor of more than three to one in abundance of species compared to the sal plantations. Their presence is not a function of the reserved forest itself. Thus reserved forest in the sense of the term is a human artifact and not a habitat for wildlife except by accident.

Forest cultivation can therefore not be described as being in the first instance beneficial to wildlife, and an important lesson in the future survival of wild species has still to be learned. How much "miscellaneous forest" or preferred habitat for species diversity must be maintained to prevent the gradual erosion of native fauna and flora in the Indian subcontinent? Research in this subject is a priority, for it implies preservation of far more than merely obvious species such as birds, but rather all the elements in the food chain which make for natural diversity including soil constitution chemistry, and the entire web of interactions between rock, soil, bacteria, invertebrates and lower plants.

Meanwhile what of the birds we did not see? In open country vultures and kites were notable by their absence. Cuckoos were scarce, certain owls (our search for *Athene blewitti* was unavailing, Ripley 1976) were not seen, small kingfishers, and of course many passerines of numerous families and subfamilies which might occur seasonally or merely be overlooked. The net impression, however, was one of scarcity, with little if any song, and small aggregations of feeding flocks. These observations indicate the importance of field work which would include grid mapping, range plotting and extensive sampling to determine biotope health and prospects for continued environmental health all over India.

It is possible to state unequivocally that the bird species enumerated above preferred the "miscellaneous forest", tended to be confined there, and would be found in sal plantations only enroute from one preferred patch of habitat to another, or if, occasionally an isolated older climax forest tree should be for some random reason left isolated amidst the sal, and at the same time be in fruit or in flower. This would be an accident if it occurred. Thus our observations showed that some fifty-five species of forest birds in their habitat in Orissa are now confined to strips or

² The record of *Phylloscopus tytleri* in forest near the Mahanadi River in Dhenkanal District is an interesting one as it extends the winter range considerably east from the Tapti River in M.P.

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